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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,182	06/30/2003	Avraham Mordehay Nathan	3037/1	8791

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EXAMINER

TRIEU, THAI BA

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 05/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/608,182	Applicant(s) NATHAN ET AL.	
	Examiner Thai-Ba Trieu	Art Unit 3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
 - If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
 - If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
 - Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☒ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Drawings

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the ***“outlet opening”*** (See Claim 1, part (e), line 1; and Claim 4, line 3); ***“seal area being implemented as one inlet, one outlet and one seal area”*** (See Claim 5, lines 2-3); ***“a disc”*** (See Claim 7, line 1); ***“a second and third axes of rotation”*** (See Claim 10, lines 2 and 4; Claim 12, line 4; and Claim 13, line 3); and ***“an injector”*** (See Claim 15, line 2; and Claim 16, line 1) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show ***“outlet opening”*** (See Page 3, part (e), line 1 and 21); ***“seal area being implemented as one inlet, one outlet and one seal area”*** (See Page 4, line 3); ***“a disc”*** (See Page 4, line 1); ***“a second and third axes of rotation”*** (See Page 4, line 18; Page 5, lines 4 and 10); and ***“an injector”*** (See Page 5, lines 16-17); ***“areas 42”*** (See Page 9, line 5); ***“element carriage 220” and “main shaft 222”*** (See Page 10, line 11); ***“one outlet”*** (See Page 8, line 20, and Page 12, line 23); ***“two sets of associated inlets and outlets”*** and ***“the seat”*** (See Page 13, lines 3 and 12) as described in the specification. Any structural detail that is essential for a proper understanding of the

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disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character **"44"** has been used to designate both **"conical drive gear"** (See Page 8, line 11) and **"area"** (See Page 9, line 5). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character **"11 and 12 "** has been used to designate both **"shell halves"** (See Page 7, line 23) and **"stator housing "** (See Page 9, line 5). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character **"252"** has been used to designate two different elements (See Figure 4). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: **"40"** and **"32"** (See Figure 1), **"252"** (See Figures 4 and 5). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

The disclosure is objected to because of the following informalities:

- On Page 7, line 23, **"two opposing shell halves 10 and 12"** should be replaced by – **two opposing shell halves 11 and 12**—(for correcting typo error).
- On Page 8, lines 10 and 14-15, **"axel 6"** should be replaced by – **common rotatable axel 6** -- (for consistency of the whole specification).
- On Page 11, line 5, **"area 264"** should be replaced by – **seal area 264** -
- (for consistency of the whole specification).
- On Page 12, line 4, **"seat 264"** should be replaced by – **seal area 264** -
- (for correcting typo error).

Appropriate correction is required.

Claim Objections

Claims 2-16 are objected to because of the following informalities:

- In claim 2, line 2, **“(e)”** should be replaced by -- **(f)** --; and line 4, **“(f)”** should be replaced by -- **(g)** -- (for correcting typo error).

- In claims 2-16, line 1; **“The machine”** should be replaced by **–The rotary variable volume machine --**.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

Claim **4** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Specifically, the recitations of **“one inlet opening being configured proximally to said seal area in a direction of rotation”** and **“one outlet opening being configured distal to said seal area in a direction of rotation”** renders the claim indefinite, since it is not clear that How close the inlet is anatomically located to the seal area and how far the outlet opening is anatomically located from the seal area in a direction of rotation, such as 1 mm, or 1cm, or 1 inch etc.... applicant should clarify the distance form the outlet opening to the seal area.

Claims **5-14** depend on claim **4**; accordingly, claims **5-14** are rejected under 35 U.S.C. 112, second paragraph.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2 and 15-16 are rejected under 35 U.S.C. 102(b) as being anticipated by Ballinger (Patent Number 4,741,308).

Ballinger discloses a rotary variable-volume machine comprising;

(a) at least one piston element (36, 38) (See Figures 2-7);

(b) a piston mechanism (112, 114, 140) configured to move said piston element (36, 38) in a motion that is simultaneous orbital motion about a primary axis (through end shafts 50 and 52) and rotation about a secondary axis (through end shafts 72 and 74; and 76 and 78) that passes through said piston element (36, 38), such that said piston element sweeps out an annular path of variable cross-section (See Figures 2-7);

(c) a stator housing (10) containing a modified toroidal operational volume, said modified toroidal operational volume defined by said annular path, such that the side piston element moves through said modified toroidal operational volume, said piston element contacting walls of said modified toroidal operational volume (See Figures 2-7);

(d) at least one inlet opening (150) through said stator housing into said modified toroidal operational volume (See Figures 2-7);

(e) at least one outlet opening (152) through said stator housing from said modified toroidal operational volume (See Figures 2-7; Column 2, lines 35-68, Column 3, lines 1-68, and Column 4, lines 1-27);

(f) a main shaft (via end shafts 50 and 52) deployed in said stator housing, said main shaft configured so as to rotate about said primary axis (See Figure 2);

(g) at least one rotor (30) mechanically linked to said main shaft (via end shafts 50 and 52) so as to rotate about said primary axis of rotation, said rotor (30) being at least partially deployed within said modified toroidal operational volume, said at least one piston element (36, 38) being deployed on said rotor (See Figures 3-7);

an injector (carburetion device 160, fuel source 162, and air source 164) for injecting a combustible mixture into said inlet (150) (See Figure 4, and Column 4, lines 28-64).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ballinger (Patent Number 4,741,308), in view of Mason (Patent Number 473,940).

Ballinger discloses the invention as recited above, and further discloses said at least one piston element being implemented as at least one pair of piston elements

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(36,38) deployed on said rotor, and each one of said pair of said piston elements (36, 38) is deployed opposite another one of said pair at 180° and lies in a plane that is at 90° to a plane of another one of said pair, and at any point of rotation where any one of said piston elements lies within a cross-section of said rotor, a surface area of said stator housing contacts said rotor thereby creating a seal area (See Figures 2-78, 10; Column 5, lines 30-32);

Wherein said at least one inlet opening being configured proximally to said seal area (Read as the gap between the rotor and the stator) in a direction of rotation, and said at least one outlet opening is configured distal to said seal area (Read as the gap between the rotor and the stator) in a direction of rotation (See Figures and 4-7, Column 5, lines 25-32);

However, Ballinger fails to disclose said piston elements having at least a region with a thickness substantially equal to the thickness of said rotor.

Mason teaches that it is conventional in the pump art, to utilize said piston elements (J, K, L, M) having at least a region with a thickness substantially equal to the thickness of said rotor (I) (See Figures 1-2).

It would have been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized said piston elements having at least a region with a thickness substantially equal to the thickness of said rotor, as taught by Mason, to improve the efficiency of the Ballinger device.

Allowable Subject Matter

Claims **5-14** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Hippocrates (US Patent Number 4,898,525) discloses a motor, pump, an flow meter with a planetary system.
- Horst (US Patent Number 4,384,832) discloses an engine with counter-rotating rotors having hemi-cylindrical pistons.
- Park (US Patent Number 3,799,126) discloses rotary machine.
- Fisher (US Patent Number 3,935,840) discloses a rotary engine.
- Bunce (US Patent Number 3,699,930) discloses a rotary internal combustion engine.
- Booth (US Patent Number 2,182,719) discloses a rotary fluid pressure engine .
- Roberts (US Patent Number 1,279,912) discloses a hydraulic device for pumping and other purposes.
- Keil (US Patent Number 1,136,344) discloses a rotary engine.
- Blanchi (Patent Number EP 0 307 365 A2) discloses a rotary pump.
- Thibault (Patent Number FR 1 337 661) discloses a rotary piston engine.

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- Sturm (Patent Number DE 37 24 076 A1) discloses a rotary cylinder internal combustion engine.
- Urbanke (Patent Number DE 31 41 753 A1) discloses a roller motor.
- Cheshire Soft Ware (Patent Number GB 1 362 686 A) discloses a rotary piston pump.
- Muramoto (Patent Number JP 61123788 A) discloses a rotary pump.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (703) 308-6450. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (703) 308-2623. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should

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you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
May 14, 2004



Thai-Ba Trieu
Patent Examiner
Art Unit 3748